REMARKS AND RESPONSES

The Examiner is thanked for the thorough examination of this application. The Office Action, however, tentatively rejected all claims (1-6) as allegedly unpatentable over Thomas et al. (US 6,116,848) in view of White et al. (US 6,746,198). For at least the reasons that follow, Applicants disagree and respectfully request reconsideration and withdrawal of the rejections.

Claim Rejection - 35 U.S.C. §103

The Office Action rejected Claims 1-6 under 35 U.S.C. §103(a) as allegedly unpatentable over Thomas et al. (US 6,116,848) in view of White et al. (US 6,746,198). Of the rejected claims, claims 1, 2, 4 and 5 are independent.

> **To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.** *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). **"All words in a claim must be considered in judging the patentability of that claim against the prior art."** *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). **If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious**. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

(MPEP §2143.03 **All Claim Limitations Must Be Taught or Suggested)**

Applicants respectfully submit that the combination fails to disclose or suggest certain features of the claimed invention. For example, **neither mentions the intention** of lowering the amount of the electrostatic charges produced during the manufacturing process. In the regard, each independent claim of the present application expressly defines a "robotic arm for preventing electrostatic damage..." Further, the cited art fails to teach or suggest that pad's material is similar to that of the substrate, so as to avoid damaging electronic devices on the substrate by electrostatic charges. In this regard, independent claims 1 and 4 each recite "a material of the pads is identical to that of the substrate." Similarly, independent claims 2 and 5 recite "a

material of the pads being similar to that of the substrate to avoid damaging electronic devices on the substrate by electrostatic charges..." No such comparable feature is properly disclosed in the cited art.

In contrast, Thomas et al. appears to disclose an apparatus for gripping semiconductor wafers in order to enable transport using edge contact to reduce the back-side contamination or damage of a wafer. The apparatus comprises a movable platform for receiving a wafer. The platform may include O-rings composed of physically resistive material, such as quartz. Thomas et al. also suggest that such O-ring pads may be eliminated or replaced with other low-friction materials. In short, Thomas et al. is largely irrelevant to the claimed embodiments and means to solve the similar electrostatic charges problem addressed by the present application.

With regard to White et al., Applicants respectfully submit that White et al., like Thomas, fails to teach or suggest the notion of lowering the electrostatic charges produced during the process, **nor that the** pad's material is similar to (much less identical to) the substrate, in order to lower electrostatic charges. Instead, White et al. appears to disclose an apparatus (*i.e.*, a substrate transfer shuttle) for substrate transport. In order to deal with the situation that the shuttle must endure the temperatures about 460°C or even higher for heating substrates, White et al. teach that pads on fingers for supporting a substrate held by the shuttle may advantageously be made of a material such as a ceramic, stainless steel, quartz, or other such materials. While Applicants specifically point out that the specific material is chosen in order to meet the extreme temperature condition but not to lower possible electrostatic charges, White et al. do not suggest or teach the means (or even intention) to solve the problem addressed in the present application.

> The mere fact that references can be combined or modified not render the resultant combination obvious, unless the prior art also suggests the desirability of the combination. In re Kotzab, 217 F.3d F.2d 680, 16 USPQ2d

1430 (Fed. Cir. 1990). (MPEP §2143.01)

> Absent such a showing in the prior art, the examiner has impermissibly used "hindsight" by using the applicant's teaching as a blueprint to hunt through the prior art or the claimed elements and combine them as claimed. In re Zurko, 111 F.3d 887, 42 USPQ2d 1476 (Fed. Cir. 1997) Such an approach would be "an illogical and inappropriate process by which to determine patentability." Sensonic, Inc. v. Aerosonic Corp., 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996)

Applicants therefore respectfully submit that the Office Action has not provided any reasonable motivation for combining the two irrelevant contents. The examiner stated that it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the apparatus (Thomas et al.) to support glass substrates as taught by White et al. However, there is no teaching in any of the references about the need to combine the other reference. Accordingly, Applicants respectfully submit that the Examiner does not provide proper motivation.

In addition, **neither Thomas et al. nor White et al., teaches the solution** that pads allocated for loading a substrate **must be made of a material which is the same as or similar to that of the substrate to avoid damaging electronic devices on the substrate by electrostatic charges** generated by friction during the manufacturing process, as claimed by the independent claims 1, 2, 4 and 5 of the present application. In other words, Applicants respectfully submit that even if the cited references were combined, the references would not meet the claims of the present application. For at least this additional reason, the rejection should be withdrawn.

With respect to Paragraph 3 of the Office Action, the Office Action rejected Claims 1-6 under 35 U.S.C. §103(a) as allegedly unpatentable over Miyata et al. (JP 363239839A) in view of White et al. (US 6,746,198). Of the rejected claims, claims 1, 2, 4 and 5 are independent.

Based on the English abstract of Miyata, Miyata appears to teach a system to safely convey a wafer and to prevent dust from adhering thereto by securing the wafer by vacuum suction on an arm, Miyata et al. discloses a mechanism for reversely rotating both arms coaxially. A quartz suction pad and a disc are secured at four positions of a wafer to the arms, thereby remarkably reducing the adherence of dusts. Applicants respectfully submit that the use of quartz suction pad is merely to cope with the adherence of dust rather than to lower any possible electrostatic charges. Consequently, Miyata et al. do not suggest or teach the lowering of electrostatic charges or pad materials being similar to the substrate, as embodied in the independent claims of the present application.

As stated above, White et al. **neither disclose or teach the concept or intention** to lower the electrostatic charges **nor allude** that pad's materials similar to the substrate can lower electrostatic charges. White et al. disclose an apparatus for substrate transport to endure temperatures for heating substrates. White et al. teach that pads on fingers (for supporting a substrate) may be made of a material such as quartz, or other such materials. In short, White et al. do not suggest or teach the intention or means to solve the problem of the present application, either.

Therefore, Applicants again respectfully submit that the Office Action has not provided any proper reasonable motivation for combining these references. The Office Action stated that it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the apparatus (Miyata et al.) to support glass substrates as taught by White et al. However, Miyata et al. and White et al. do not contain any suggestion expressly or impliedly that they be combined or they be combined in the manner suggested. Accordingly, Applicants respectfully submit that the rejection should be withdrawn.

Neither Miyata et al. nor White et al., teaches the solution that pads allocated for loading a substrate **must be made of a material which is the same as or similar to that of the substrate to avoid damaging electronic devices on the substrate by electrostatic charges** generated by friction during the manufacturing process. In other words, Applicants respectfully submit that even if they were combined, the combination would still fail to meet the claimed features of the present application.

With respect to Paragraph 3-4 of the Office Action, the Office Action rejected claims 1-6 under 35 U.S.C. §103(a) as allegedly unpatentable over Bui et al. (US 6,190,113) in view of White et al (US 6,746,198). Of the rejected claims, claims 1, 2, 4 and 5 are independent.

Bui et al. provide a wafer support device with a susceptor support that permits more even heating and thermal uniformity or heat distribution across the susceptor and thereby more even heating or heat distribution across the semiconductor wafer. It is mentioned in the specification that wafer support (i.e. pin lift device) is typically made of quartz, but people may use other material with properties closely related to quartz. To specially point out, the applicants respectfully submit that Bui et al., however, do not give the reason why quartz is preferred or what are the preferred properties of quartz. Anyhow, it is understood that **Bui et al. do not work on the problems caused by electrostatic charges** or **teach the idea of the pad material being similar to the substrate in order to lower electrostatic charges**.

As stated above, White et al. does not address the **intention** of lowering the electrostatic charges, **nor does White allude** to idea that the pad's material is similar to the substrate, for the purpose of lowering electrostatic discharge. Instead, White et al. disclose an apparatus for substrate transport to endure the temperatures for heating substrates. White et al. teach that pads on fingers for supporting a substrate may be made of a material such as quartz, or other such

materials. In short, White et al. do not suggest or teach the intention to lower the electrostatic charges or the pad's materials being similar to the substrate to lower electrostatic charges.

Applicants again respectfully submit that the Office Action has not provided any reasonable motivation for combining Bui et al. and White et al. The Office Action stated that it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the apparatus (Bui et al.) to support glass substrates as taught by White et al. However, there is no teaching in any of the references about the need or desire to combine the other reference. Accordingly, applicants respectfully submit that the obviousness of making the combination is not satisfied.

In addition, **neither Bui et al. nor White et al. teaches the solution** that pads allocated for loading a substrate **must be made of a material which is the same as or similar to that of the substrate to avoid damaging electronic devices on the substrate by electrostatic charges** generated by friction during the manufacturing process. In other words, Applicants respectfully submit that even if they were combined, the combination would not meet the claims of the present application.

> When applying 35 U.S.C. §103, the following tenets of patent law must be adhered to:
>
> The references must be considered as a whole and must **suggest the desirability** and thus the obviousness of making the combination; and
>
> **Reasonable expectation of success** is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986). (MPEP §2141)

In the light of the above discussions, it is clear that all of the cited references fail to confront the issue that the electrostatic charges produced during the manufacturing process may damage the electronic devices on the substrate, **which is the very problem solved by the present application**. In the absence of such guidance, Applicants submit that a *prima facie* motivation cannot be reasonably established. Given the above, persons skilled in the art **cannot accomplish the contents of the present application** by combining Thomas et al., White et al., Miyata et al. and Bui et al., which are **all irrelevant** to the concept of lowering the electrostatic charges produced during the process and that pad's materials being similar to the substrate can lower electrostatic charges, as taught by the present application.

Consequently, the claimed embodiments of the present application are not obvious in view of the combination among Thomas et al., White et al., Miyata et al. and Bui et al.

CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

By: 

Daniel R. McClure
Registration No. 38,962

Thomas, Kayden, Horstemeyer & Risley, LLP
100 Galleria Pkwy, NW
Suite 1750
Atlanta, GA 30339
770-933-9500